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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/851,066	05/07/2001	Tongwei Liu	HP-10012392	2859

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HEWLETT-PACKARD COMPANY  
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EXAMINER

LE, MIRANDA

ART UNIT	PAPER NUMBER
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2167

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/851,066

Applicant(s)

LIU, TONGWEI

Examiner

Miranda Le

Art Unit

2167

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/24/2005 has been entered.
2. Claims 1-22 are pending in this application. Claims 1, 8, 15, 22 are independent claims. In the Amendment A, claims 1, 8, 15, 22 have been amended. This action is made non-Final.

### *Claim Rejections - 35 USC § 101*

3. 35 U.S.C. § 101 reads as follows:  
"Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title".
4. Claim 1, 22 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1, 22 define non-statutory processes because the process as recited merely requires a person to think through the steps without using the results for anything or storing the results anywhere for future use. The only caveat would be the use of the classification tool, but it appears that the tool is sufficiently broad to encompass another set of mental steps.

The dependent claims 2-7 suffer of similar deficiencies of their respective base claim, as noted above.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless:

(e) the invention was described in

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-6, 8-13, 15-20, 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Hadzikadic et al. (US Pub. No. US 2002/0059202).

Hadzikadic anticipated independent claims 1, 8, 15, 22 by the following:

**As to claims 1, 8, 15,** Hadzikadic teaches receiving a record comprising a plurality of variables, wherein said record comprises information for a first portion of said variables (i.e. data reflecting various attributes of breast cancer patients i.e. age, weight, smoker, none or malignant or benign may be used to build a classification tree to aid health care professionals in the diagnosis or risk assessment of current patient [0074], [0076], [0031]);

if said record comprises information for all of said variables (i.e. a prediction accuracy criterion requirement of 85% or better, [0025]), using said information with a first classification tool adapted to classify said record (i.e. receives a data set of instances and builds a first classification structure, standardized data can be used to determine the prediction accuracy of

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this first classification structure, wherein a prediction accuracy criterion value is set as a configuration value of 85% or better [0025], [0076], [0078], [0042]);

if said record comprises information for some (i.e. confidence levels were consistently below 75%, [0025]), but not all, of said variables (i.e. the retained classification structure does not contain information on all attributes of the data set instances, [0026]), using said information with a second classification tool (i.e. subsequent classification structures, [0026]) instead of with said first classification tool to classify said record in response to determining that said first classification tool requires a particular item of information that is missing from said information (i.e. subsequent classification structures are built using small number of attributes for the instances in the data set that was used to built the first classification structure, [0026]), step 301- Fig. 6, [0107], [0074], [0078], [0080], [0031], [0037]).

**As per claim 22, Hadzikadic teaches:**

ranking said plurality of variables according to their respective influence on said classifying (i.e. the relevance factor reflects the influence of the attribute value on the classification determination, [0086]);

grouping said plurality of variables into subsets of variables using said ranking, wherein a classification tree is computed for each of said subsets (i.e. using weighted attribute relevance in the calculation of similarity and cohesiveness value in order to build an unbiased classification tree, [0033], [0086]);

receiving a record comprising information for at least some of said variables associated with record and, if said record comprises information for all of said associated variables ([0074], [0076], [0031]);

if said record comprises information for all of said associated variables (i.e. a prediction accuracy criterion requirement of 85% or better, [0025]) using said information with a first classification tree adapted to classify said record, wherein said first classification tree is based on a substantially complete set of information for said plurality of variables [0076], [0078], [0080], [0031], [0037];

if said record comprises information for some (i.e. confidence levels were consistently below 75%, [0025]), but not all, of said variables (i.e. the retained classification structure does not contain information on all attributes of the data set instances, [0026]), using said information with a second classification tree instead of with said first classification tree to classify said record when said first classification tree requires a particular item of information that is missing from said information, wherein said second classification tree is based on information for one of said subsets of variables, wherein said one of said subsets does not include said particular item of information that is missing (i.e. subsequent classification structures are built using small number of attributes for the instances in the data set that was used to built the first classification structure, [0026]), step 301-Fig. 6, [0107], [0076], [0078], [0080], [0031], [0037], [0042]).

**As to claims 2, 9, 16,** Hadzikadic teaches first classification tool and said second classification tool are a first classification tree and a second classification tree, respectively ([0078], [0079], [0080]).

**As to claims 3, 10, 17,** Hadzikadic teaches first classification tree is computed using a substantially complete set of information for said plurality of variables (i.e. builds a first classification tree from the data set of instances to be classified, using all attributes, and determines the prediction accuracy for the first classification tree, [0126]) and wherein said second classification tree is computed using information for a subset of said plurality of variables, wherein said subset does not include said particular item of information that is missing (i.e. builds subsequent classification trees, using fewer attributes for each instances to be classified with each subsequent build, e.g. missing information, determines the prediction accuracy of each subsequent classification trees, discarding those classification trees that do not meet the prediction accuracy acceptability criteria, retains at least one classification tree which uses less attributes than the first classification tree and which predicts with results that fall within the prediction accuracy acceptability criteria, [0127], [0037], [0042]).

**As to claims 4, 11, 18,** Hadzikadic teaches “ranking said plurality of variables according to their respective influence on said classifying” at [0086];

“grouping said plurality of variables into subsets of variables using said ranking” at [0086].

**As to claims 5, 12, 19,** Hadzikadic teaches computing a classification tree for each one of said subsets ([0127], [0078], [0079], [0080], [0042]).

**As to claims 6, 13, 20**, Hadzikadic teaches “said record comprises customer information for a client, wherein content is selected for delivery to a customer according to said classifying of said record” at [0043], [0044].

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 7, 14, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hadzikadic et al. (US Pub. No. US 2002/0059202), in view of Gehrke et al. (Tutorial notes of the fifth ACM SIGKDD international conference on Knowledge discovery and data mining).

**As to claims 7, 14, 21**, Hadzikadic does not specifically teach “substituting a default value for said particular item of information that is missing”. However, Gehrke teaches this limitation at page 32 (missing values handled by surrogate splits).



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Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Hadzikadic with the teachings of Gehrke to include “substituting a default value for said particular item of information that is missing” in order to efficiently construct predictor trees from very large training databases by utilizing tree pruning and missing value handling methods.

### *Response to Arguments*

9. Applicant's arguments, regarding the cited references do not show or suggest the amended claims, with respect to claims 1, 8, 15, 22, have been considered but are moot in view of the new ground(s) of rejection.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Miranda Le whose telephone number is (571) 272-4112. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jean Homere, Esq., can be reached on (571) 272-3780. The fax number to this Art Unit is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Miranda Le

October 14, 2005



CHETA ROBINSON  
PRIMARY EXAMINER